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TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-6669

Mr. Michael Strimbu
Deputy Project Officer
Emergency Response Section
Western Response Unit
U.S. Environmental Protection Agency
11th Floor
230 South Dearborn Street
Chicago, Illinois 60604

January 31, 1987

TAT-05-F-01291

Re: P.R. Mallory OSC Support, Crawfordsville, Indiana
TDD# 5-8701-14 (FY 1987)
5-8612-34 (FY 1987)
5-8610-42 (FY 1987)
5-8605-25 (FY 1986)

Dear Mr. Strimbu:

On May 29, 1986, the U.S. Environmental Protection Agency (U.S. EPA) tasked the Technical Assistance Team (TAT) to provide On-Scene Coordinator (OSC) support in monitoring Potential Responsible Party (PRP) site activities being performed at the former P.R. Mallory location. This letter report and the attached materials summarize the actions taken by Dart & Kraft, Inc. to remedy site contamination at the P.R. Mallory site.

The former P.R. Mallory site is located on the north side of State Road 32, approximately three miles east of Crawfordsville, Indiana (Figure 1). The P.R. Mallory Company manufactured paper dielectric capacitors containing polychlorinated biphenyls (PCBs) at the plant site from 1959 until 1969 when the facility was completely razed by a fire. Defective capacitors were reportedly dumped behind the plant during the operating period of the facility (Figure 2).

On May 19, 1986, the TAT conducted a site assessment, including an investigative soil sampling program for PCB contamination. The results of the sampling program indicated soil PCB concentrations ranging from 325 parts per million (ppm) off-site up to 165,042 ppm in the apparent capacitor disposal area. Unrestricted site access coupled with the high concentration of PCB contamination represented a serious and imminent threat to human health and the environment. Subsequently, the TAT prepared an Emergency Action Plan (EAP) as tasked by the OSC (TDD# 5-8605-10). The EAP, delivered to the U.S. EPA in July, 1986, included measures to restrict site access, determine the extent of contamination, excavate, secure, and dispose of all contaminated material.

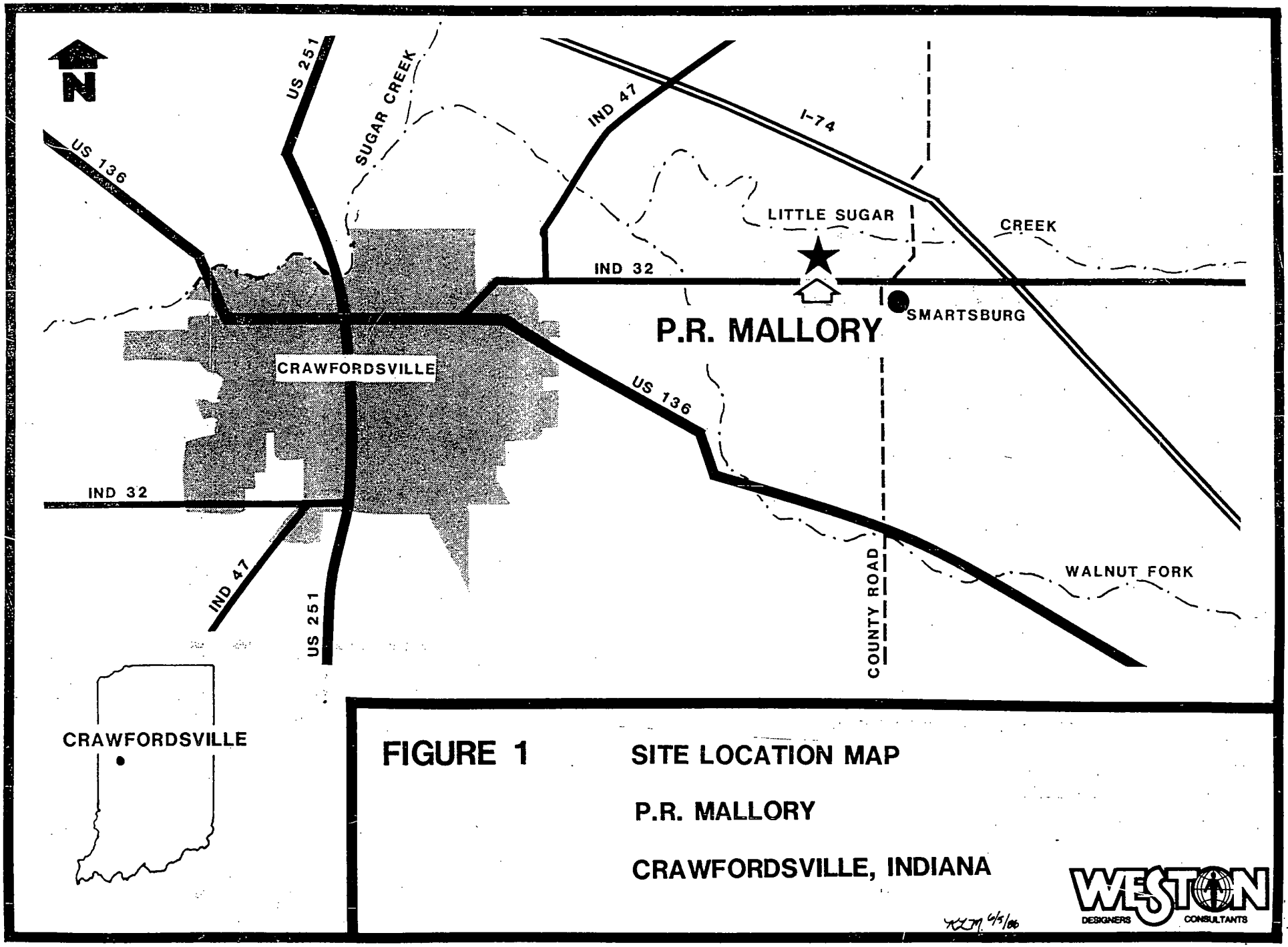

FIGURE 1 SITE LOCATION MAP

P.R. MALLORY

CRAWFORDSVILLE, INDIANA

YXJM 6/5/06

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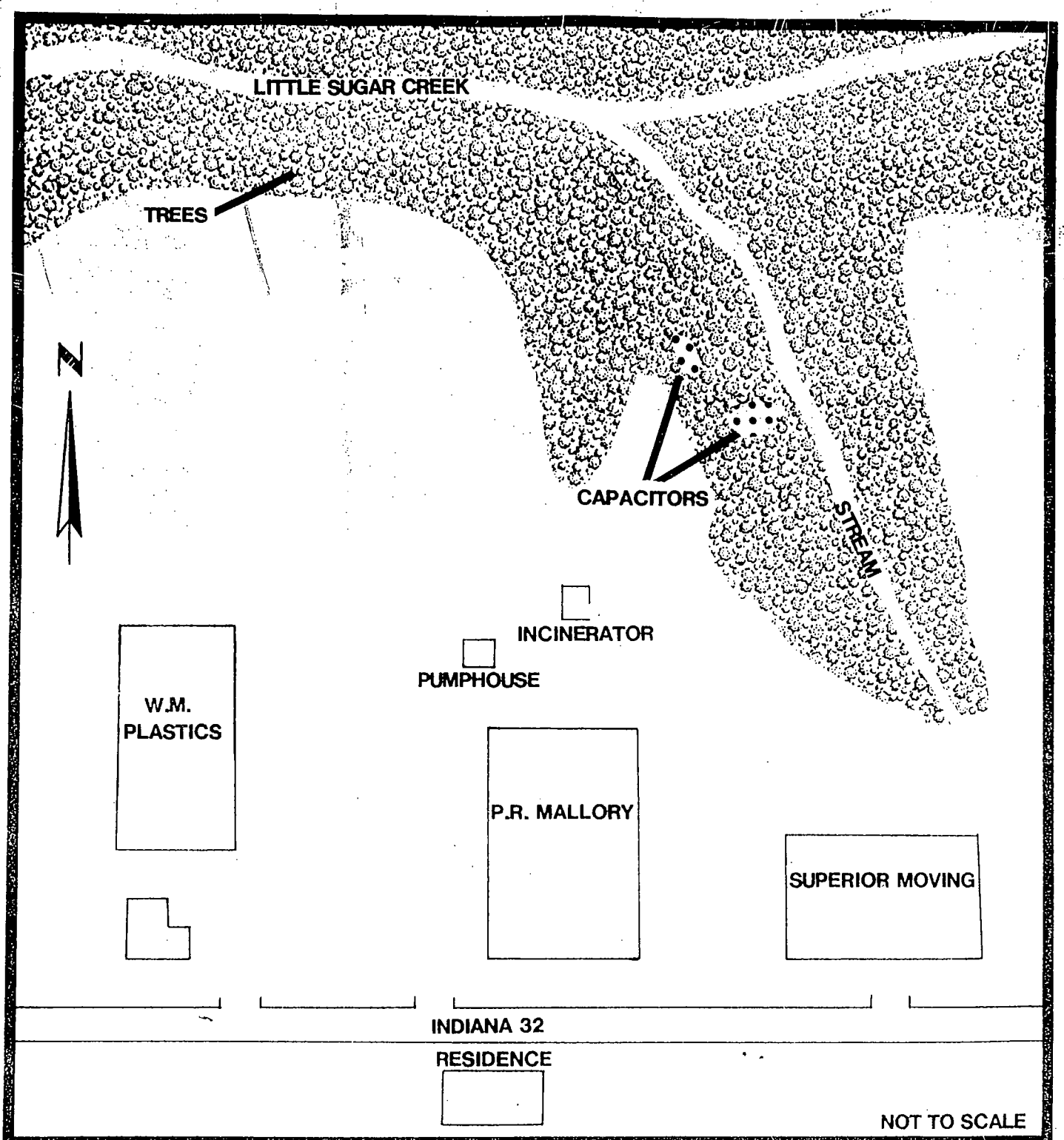

FIGURE 2

SITE MAP

P.R. MALLORY

CRAWFORDSVILLE, INDIANA

YCCM 6/9/96

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The TAT investigation into the ownership of the property identified Duracell International as a former owner and operator of the facility. Dart and Kraft, Inc., the parent company of Duracell, was issued an Administrative Order by the U.S. EPA on June 23, 1986. Terra Products, Inc., the current property owner, was also named as a respondent in the Order. Romer Wilsek, Director of Regulatory Affairs for Dart & Kraft, Inc., and their contractor, Conestoga - Rovers and Associates (CRA), met with U.S. EPA and State of Indiana personnel on July 7, 1986 to discuss their proposed work plan designed to remedy site conditions. During this meeting Dart & Kraft, Inc. informed the agency that a property survey revealed that the apparent disposal area was located on neighboring property owned by Superior Moving. Subsequently, an Amended Administrative Order was issued on August 20, 1986, adding Superior Moving as a respondent. The State of Indiana issued a complaint on October 31, 1986 against the same PRPs.

A preliminary sampling program was conducted by CRA on August 6, 1986. Samples were collected in accordance with a sampling plan previously approved by the U.S. EPA. A total of nine surficial soil samples (including duplicates) were collected and analyzed for total PCBs, total dibenzo-p-dioxins and total dibenzofurans. Analyses of the samples were performed by California Analytical Laboratories, Inc. following strict U.S. EPA Contract Laboratory Program (CLP) protocols.

Total PCB concentrations ranged from 5,200 ppm to 130,000 ppm. The analytical results for PCBs confirmed the findings of the previous TAT sampling results. In addition, total dioxin and furan contamination was identified prompting the analysis for all di- thru octa- isomers for both constituents in all samples. Correlation of the various dioxin and furan isomers (tetra through octa) to 2,3,7,8 -tetrachlorodibenzo-p-dioxin (TCDD) using U.S. EPA toxicity multipliers revealed concentrations well above the 1 part per billion (ppb) action level for 2,3,7,8 - TCDD. A 2,3,7,8 - TCDD equivalent of 85.5 ppb was the highest concentration obtained using the toxicity multipliers with the 2,3,7,8 - pentachlorodibenzofuran (TCDF) isomer contributing the largest portion of that value. The 2,3,7,8 - TCDD Toxic Equivalency Factors (TEFs) for the samples are presented in Table 1.

CRA completed installation of a security fence around the former plant site and disposal area on August 18, 1986. A sediment trap consisting of baled straw and an oil absorbant

TABLE 1

Chlorinated Dibenzo Dioxins (CCD) and Furans (CDF)
Toxic Equivalency Factors (TEF)
P.R. Mallory, Crawfordsville, Indiana

			SAMPLES								
	Isomer *	TEF	01	02	03	04	05	06	07	08	09
Mono thru Tri		0	0	0	0	0	0	0	0	0	0
TCDD	2,3,7,8	1	-	-	-	-	.31	-	-	-	.16
	Other	.01	.0004	.0012	.0037	.0023	.0159	.0057	.00012	-	.0094
PeCDD	2,3,7,8	0.5	-	-	-	-	.255	-	-	.235	.12
	Other	0.0005	-	.00445	.00045	.005	.01545	.00065	-	.00415	.0093
HxCDD	2,3,7,8	0.04	-	-	-	-	-	-	-	-	.0136
	Other	0.0004	0	.00004	.00007	.00034	.00132	.00011	-	.00008	.00084
HpCDD	2,3,7,8	0.0001	.00045	-	-	-	.001	-	-	.0011	-
	Other	0.00001	0	0	-	-	0	0	0	0	.00002
OCDD		0	0	0	-	-	0	0	0	0	0
TCDF	2,3,7,8	0.1	.25	1.03	.9	.09	8.37	2.0	.048	1.15	5.76
	Other	0.001	.0826	.079	.148	.1241	.7333	.145	.00872	.0895	.4564

TABLE 1 continued

PeCDF	2,3,7,8	0.1	.91	2.22	75.7	16.29	13.56	9.77	.47	6.98	8.68
	Other	0.001	.0256	.0788	.073	.7421	.4544	.3153	.0116	.0512	.3122
HxCDF	2,3,7,8	0.01	.034	.5642	7.858	5.194	1.697	2.338	.1204	.6629	1.256
	Other	0.0001	.00052	.00636	.10242	.13086	.02213	.05592	.00136	.00727	.01874
HpCDF	2,3,7,8	0.001	.00175	.0359	.704	.688	.0436	.2086	.0079	.0379	.1114
	Other	0.00001	.00002	.00013	.00259	.00342	.0006	.00087	.00029	.00014	.00053
OCDF		0	0	0	0	0	0	0	0	0	0
		TOTALS	1.3053	4.0201	85.492	23.270	25.480	14.840	.66839	9.2192	16.908

* Dibenzo-P-Dioxins and Dibenzofurans that are chlorinated at the 2,3,7 and 8 positions are denoted as 2,3,7,8 congeners, e.g., 1,2,3,7,8 PeCDF and 2,3,4,7,8 - PeCDF are both referred to as a 2,3,7,8 - PeCDF isomer.

boom were also installed in the ravine to prevent any contaminant migration into Little Sugar Creek.

CRA submitted for approval a Response Action Work Plan (RAWP) to the U.S. EPA and State of Indiana on October 9, 1986. This RAWP was amended to address concerns discussed at an October 27, 1986 meeting between all the involved parties. A Quality Assurance Project Plan (QAPP) was later submitted presenting the specific data quality goals desired during the field investigative activities.

The U.S. EPA was requested by John Orr, Environmental Epedimiologic Investigator with the Indiana State Board of Health (ISBH), to conduct a gamma radiation survey prior to any site activity. The TAT conducted a radiation survey of the site encountering only background levels between 0 and .02 milliroentgens per hour. A public information meeting, sponsored by ISBH and IDEM, was held December 3, 1986. The purpose of the meeting was to inform the residents of the local community of the planned site activities and to assure then that all necessary safety precautions were being taken to protect the community's health. Dave Favero, Remedial Project Manager of the U.S. EPA Remedial Response Branch participated in this meeting, presenting the Agency's involvement in monitoring all site activities (Attachment A).

Site activities were initiated on November 30, 1986. CRA contracted Sevenson Containment of Niagara Falls, New York to perform all site preparation and soil excavation. Site preparation included the construction of a decontamination pad and a concrete interim storage cell with sump. The interim storage cell was underlain with a 40 mil, high density, polyethylene (HDPE) liner, to provide secondary containment. To facilitate excavation, trees near the disposal area were cut at 18 inches above grade and transported off-site to a local sanitary landfill. All visible capacitors were collected and placed in drums. Excavated soil was placed in the interim storage cell and covered with a HPDE overliner anchored around the cell perimeter. A HDPE liner was also installed over the excavated area to prevent erosion and possible contaminant migration.

CRA conducted an investigative sampling program throughout this phase to identify all remaining significantly contaminated material which will be excavated and secured on-site at a later date. Sampling was conducted according to a program approved by the U.S. EPA and IDEM. A sampling grid was established over the capacitor disposal area, adjacent land areas on- and off-site, and in the drainage ditch from the disposal area to Little Sugar Creek. Soil, stream sediment, concrete core, surface water and groundwater sample matrixes were collected. All samples were to be analyzed for total PCBs. Ten percent of all samples were to be analyzed for total dioxins and dibenzofurans. Additionally, another ten percent were to be analyzed for priority pollutant base neutral-acid extractables and volatile organics.

Seven groundwater monitoring wells were installed at five locations on site. GeoTechnology of St. Louis, Missouri was contracted for the well installation. Strict protocols for monitoring well installation were followed to prevent possible cross contamination between drilling locations. Two wells were completed within the deep gravel aquifer, at an approximate depth of 115 feet. The remaining five wells were screened at the first permeable zone encountered. Sample analyses of the collected groundwater matrixes will determine if the water supply may have been contaminated by any solvents used to degrease the capacitors.

To conclude Phase 1 activities, CRA surveyed horizontal and vertical controls of all the sample locations. Additionally, a magnetometer survey of the site was conducted to determine whether any other buried disposal areas were present on-site.

CRA will submit a report outlining the analytical results, action levels for contaminant removal, estimate of quantity of material to be removed, scope of work to meet the reported action levels, and a description of the proposed on-site staging facility to contain the material. This report and the proposed activities will encompass Phase II. Phase II activities are to be monitored by the U.S. EPA Remedial

Attachment A

Newspaper Article Regarding Site Activities

Journal Review
December 4, 1986

THURSDAY

The Nation
Panel looks to Cabinet on Iran
See Page 10

Sports
Bubbles gives it another shot
See Page 13

The State
Auto plant incentives listed
See Page 20

National Newspaper Blue Ribbon Newspaper Foundation

Journal Review

December 4, 1986 Vol. 145 No. 55 YOUR FREEDOM NEWSPAPER Crawfordsville, Indiana 47933

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PCB cleanup proceeding cautiously

By PAT CLINE
Civic Affairs Editor

Every precaution is being taken to protect the community's health during cleanup of hazardous materials at the old Mallory site, east of Crawfordsville.

Representatives from state and federal agencies gave this assurance during an information meeting here Wednesday night. Several former Mallory employees attended to hear and discuss potential health problems. Others attending were city and county public officials and interested citizens.

The purpose of the meeting was to inform the community of the cleanup activities, what has been done and what will be done in coming weeks. Catherine G. Lynch from the Office of External Affairs, Indiana Department of Environmental Management (IDEM), served as mediator.

IDEM Project Officer Greta Hawvermale said several actions have already taken place at the former P.R. Mallory site to evaluate the nature of the environmental problem and investigate a long-term solution.

Samplings performed last spring by IDEM confirmed the presence of at least three chemical compounds in the soil and sediments in the area. Polychlorinated Biphenyls (PCBs) found in the sediments were at a concentration of 5,200 parts per million (ppm). Total dioxins and furans found were at levels ranging between 8 parts per billion (ppb) in sediments to 85 ppb in soil. There is also the potential for volatile organics — degreasers used in the production of PCB capacitors, Hawvermale said.

The good part about this is that the site was not a landfill or recycling center but was used by a manufacturing plant which disposed of materials in a dump area and ravine, Hawvermale said. This was not an uncommon practice during that period (1956-69). It wasn't until late years that attention was given to the dangers of PCB contamination.

Once the presence of these chemical compounds was confirmed, the U.S. Environmental Protection Agency (U.S. EPA) was notified and assumed jurisdiction under Superfund provisions. Its response team came in and collected environmental samples to confirm the presence of the compounds and to determine the levels of PCBs, dioxins and furans.

David Favero, remedial project manager of U.S. EPA Region 5, said tests showed concentration levels of PCBs ranging from 300 ppm to 165,000 ppm which are considered high. Most of these tests were made at the disposal area and the ravine at the rear of the property.

Cleanup ordered

'It was obvious we needed to take formal action to have the

Continued on Page 2

Journal-Review Photo by Ann Hollenbeck

Project Manager Greta Hauvermale shows the public the companies involved in the clean up

Saudis reportedly had key role in deal

WASHINGTON (AP) — Saudi Arabia, playing a key role in a shadowy arms sales network "good relations" with the United States.

Another source who also refus- The agreement was reached while the Reagan administration was pushing a controversial Soviet tone but the usual anti-American rhetoric was absent.

The National Security Council have I acted in its behalf, directly or indirectly, in any matter relating to the sale or other

$200,000 Goal

175,000
150,000
125,000
100,000

Community United Fund

PCBs

Continued from Page 1

material is removed from the site," Favero said. "With the help of IDEM, we (EPA Enforcement Section) looked to the ownership of the property to fund the cleanup."

Dart & Kraft, parent company of Duracell International Inc., which had purchased the property from Mallory, was issued an administrative order to cleanup the site. Others named in the order were Terra Products and Superior Moving and Storage. The order directed the responsible parties to test and stablize the site and present removal plans for approval, Favero said.

Soil and sediment samples taken by Duracell showed high levels of dioxin and furans which far exceeded levels of concern, Favero said. Two fires at the Mallory plant and the practice of burning used PCB oils created these high concentrations of dioxins. Tests are in progress to evaluate levels to determine health hazards, he said.

Favero assured those at the meeting that he and Ken Myers, also of EPA, will be at the Mallory site during all cleanup work. "We will be working together to resolve this situation as quickly as possible," he said.

Work Plan

In August a security fence was erected around the area which encompasses most of the Mallory property and portions of Superior Moving & Storage and Terra Products properties. A sediment trap constructed of baled hay and an oil absorbant boom were also installed in the ravine.

Cleanup procedures will be done in two phases, the first being the removal of the immediate contaminant [illegible] followed by a long-term study of the extent of the contamination at the site. The details of the activities are laid out in a 90-page work plan which is available for public review at the Crawfordsville Public Library special services department.

Hawvermale explained what will be done in the coming weeks.

Contractor for the project is Sevenson Containment Corporation from Niagara Falls, N.Y. These are professional workers experienced in dealing with hazardous materials, Hawvermale said. They were involved in the Love Canal cleanup. Engineering consultants are from Conestoga Rovers & Associates of Ontario.

The project got under way this week which includes setting up an office, installation of a decontamination area, placement of air monitoring devices, and construction of a concrete curbed interim staging cell. The decontamination area is for equipment and workers in order to keep all hazardous materials at the site, Hawvermale said. There will be security guards at the site 24 hours a day.

The staging cell will be used to temporarily hold the contaminated soil removed from the disposal area, sedimentation from Little Sugar Creek and accumulations from the sediment traps. Capacitors and metal debris removed from the site will be packaged in drums and shipped to Texas for incineration, she explained.

An extensive sampling plan has been designed and will be implemented to define the area and extent of contamination. Sampling will include the areas of excavation, adjacent land areas and the drainage ditch leading from the plant site to Little Sugar Creek. Soil samples will be collected at different depths and surface water samples will be taken. These will be analyzed for total PCBs, dioxins and furans.

"Our concerns will be to determine if the contaminents migrated to other areas. We have set up a lot of sampling sites, and once results are known, we may branch out and do additional sampling," Hawvermale said. "We also will be taking core samples from the concrete pad and from soil underneath the pad."

Monitoring wells will be installed in various locations at the site to help determine the groundwater properties of the area. The water regularly collected from these observation wells will be analyzed for PCBs, dioxins, furans and solvents.

"There will be on-going air monitoring during the cleanup operation to make sure contaminents are not leaving the site by air," Hawvermale said. "A geophysical survey will be done to examine other areas where materials may have been buried or used. Our goal is to define the area of contamination and determine how far it migrated from the Mallory site."

Phase 1 is expected to be completed by the end of this month, Hawvermale said. Plans are to have the total project completed within six months. However, she and other agency representatives noted that unknown factors at this point may extend the cleanup project beyond the six months.

Health concerns

Greg Steele, epidemiologist for the Indiana State Board of Health, said he does not feel there is need for alarm at this point as far as there being a health risk to the community.

"You must remember that this site has been here since 1969 with real potential for public access," he said.

"We have [illegible] chemicals we are dealing with here — PCBs, dioxins and furons — they have great affinity for soil and not very volatile. This site is in a remote area so exposure to fugitive dust particles would be minimal," Steele said.

People are exposed to PCB levels in many products being used today. Everyone carries some level of PCBs in their body.

"There are two concerns we have as far as this site goes," Steele said. "We are concerned about the general community around the site as we clean up because there is a potential for releases in the air, and we will be using air monitors to keep check of this," he said. "We are also concerned about the protection of those working at the site. These workers will be wearing protective clothing throughout the project."

Asked if the SBH plans to monitor the health of former Mallory employees, Steele said no. "It would be rather difficult because there are no records available to help us determine the extinct of exposure to the chemical compounds," he said.

However, there is an on-going study being done by Occupational Safety and Health offices [illegible] S.B.H. [illegible] Westinghouse/Bloomington situation. The chemicals involved and the type of manufacturing process is similar to Mallory's operation. So whatever the study reveals will be comparable to the situation here, Steele said.

PCBs are liquid-soluble and therefore stored in fat, Steele explained. PCB body burdens are not being studied extensively in the general population but several major health effects have been reported at different PCB levels, such as chloracne and liver dysfunctions. Although PCBs have been shown to cause cancer in rats and mice, there is no current evidence that they do so in man.

There are only 11 laboratories in the United States that can test for PCB contamination in the human body, Steele said. The tests are expensive — over $100 — and take weeks to get results. There is no known way to remove PCBs from the body, he said. There are only two laboratories in the United States qualified to test for dioxins.

A former employee of Mallory, Ilenia Dexter, said a recent survey was made of Mallory employees. Fifty of the 60 people contacted have had serious health problems. The company employed 220 people at the time the plant was destroyed by fire.

To protect public interests, Duracell has been directed to coordinate off-site emergency procedures with the appropriate units of local government. A meeting was held Wednesday morning with city and county officials to discuss emergency measures.

Mayor Glenn Knecht said the state and federal representatives and Duracell's contractor were surprised at how well the city's fire department is equipped and trained to handle hazardous materials. They were interested in what type equipment and [illegible]sults we have available. "Our services would be needed if an emergency situation came up at the site," Knecht said.

"We are not only concerned about the health and safety of the community, but also finances," Knecht said. "If we have to decontaminate our equipment it could be expensive so we need to look further at this. We plan to cooperate with the agencies. We know what we have to do and we will all work together."

County officials, such as Sanitarian Robert Walters and Conservation Officer William Woodall will also be involved in the project.

corrections

It was incorrectly reported in Wednesday's edition that Steve Sloan is an AIDS victim, his wife Amy is.

Due to incorrect information supplied to the *Journal Review*, an error was made in listing Orville Pratt's occupation in Wednesday's paper. Mr. Pratt had been secretary and manager of the Indiana State Fair Board, not Indiana State Farm as published in his obituary.